

CHICAGO FORECAST DISTRICT.

Until the last few days of the month the weather conditions were without marked features. On account of the very late spring, no damage was caused by frosts.

A storm, which developed in the British northwest during the 25th, moved eastward over the northern districts on the 26th, 27th, and 28th, accompanied by thundersqualls in the upper Lake region on the 27th and 28th and severe local storms in portions of Iowa and Missouri on the night of the 27th and 28th. The following forecast was issued for Lake Michigan, April 26:

Brisk southerly winds increasing, showers and probably squalls Thursday.

On the next day this advisory message was issued to all points on lakes Michigan and Huron:

Brisk and high southerly winds, showers and thundersqualls.

Forecasts for thunderstorms were issued on the 26th and 27th for Iowa and Missouri.

By the morning of April 30 another storm had developed over eastern Colorado, which moved northeastward over Lake Superior within the next thirty-six hours, causing gales generally over the upper lakes. Storm signals were ordered for Lake Michigan at 10:30 a.m. and for Lake Huron at 10 p.m., April 30.—*H. J. Cox, Professor.*

PORTLAND, OREG., FORECAST DISTRICT.

Storm signals were ordered on the 11th and 17th, and were timely and of value, especially on the bay below Astoria, where fishing was in progress.

No river forecasts were issued during the month. Preparations were, however, made for a good service during the expected high water in May and June.

Frost warnings were issued on several occasions during the month.—*B. M. Pague, Forecast Official.*

SAN FRANCISCO FORECAST DISTRICT.

Abnormally warm weather prevailed during the first half of the month.

No destructive windstorms occurred.

Severe frosts occurred in portions of the Sacramento and San Joaquin valleys and in portions of the coast and San Francisco Bay sections on the 29th, causing some injury to grapes, but other fruits were uninjured. A large fruit grower from the vicinity of Fresno reports that the frost seemed to go in streaks; that occasionally one side of the vines would be turned black while the other side showed no sign of injury; also, that a thermometer hung 4 to 5 feet above the ground would show a temperature of about 40° while ice formed on the small pools of water near by. Climbing vines held up by supports were uninjured, except, perhaps, within a few inches of the ground.—*Alexander G. McAdie, Forecast Official.*

AREAS OF HIGH AND LOW PRESSURE.

During April there were six areas of high pressure and eight of low pressure sufficiently well defined to be traced on Charts I and II. For a description of these charts and an explanation of the figures see page 164 of this REVIEW. In preparing this matter full reports for April up to the 10th of the month only have been used. The principal facts regarding the origin, duration, velocity, and disappearance of these highs and lows will be found in the accompanying table, and the following description is added:

Highs.—All of the highs except No. I began on the Pacific coast. Nos. II and IV began on the south California coast and moved to the north Pacific coast before appearing on the land. The general motion was east or southeast. Nos. II and IV were last noted near the middle Mississippi Valley. No. II was followed to the Florida coast. Nos. I, IV, and V disappeared over Nova Scotia or Newfoundland.

Lows.—A rather permanent low pressure in southern California was the locus, or origin, of lows I, II, VI, and VIII. Nos. III and VII were first noted on the north Pacific coast, and IV and V to the north of Montana. The general motion of these lows was east or northeast. No. I was last seen off the Florida coast, No. VI in the middle Mississippi Valley, Nos. V and VII disappeared to the north of Lake Superior, and Nos. II, III, IV, and VIII were last seen on the north Atlantic coast or over Newfoundland. The highest winds of the month accompanying these lows were as follows: On the p. m. of the 4th, as low No. I approached the south Atlantic coast, a north wind of 56 miles an hour occurred at Hatteras. On the evening of the 7th as low No. III approached the middle Atlantic coast, Kittyhawk reported a southwest wind of 48 miles and New York City 46 miles from the east. The night of the 7th and 8th Woods Hole experienced a southeast wind of 48 miles. On the evening of the 16th, from the influence of a storm off the New England coast, New York city reported a northwest wind of 46 miles and that night Nantucket had a northwest wind of 48 miles. On the evening of the 27th, as low No. VII moved toward the upper Lakes, Marquette reported a southeast wind of 44 miles, and on the evening of the 29th, induced by the same low north of Lake Superior, Chicago experienced a southeast wind of 56 miles an hour.—*H. A. Hazen, Professor.*

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.							<i>Miles.</i>	<i>Days.</i>	<i>Miles.</i>	<i>Miles.</i>
I.....	*31, a.m.	52	114	8, p.m.	48	54	3,340	8.5	381	15.9
II.....	1, a.m.	37	123	7, a.m.	43	97	2,340	6.0	390	16.2
III.....	6, a.m.	47	137	12, a.m.	30	80	3,180	6.0	530	22.1
IV.....	8, p.m.	35	122	20, a.m.	47	63	4,680	11.5	407	17.0
V.....	18, p.m.	42	127	24, p.m.	44	68	3,190	6.0	532	22.2
VI.....	21, a.m.	44	124	25, p.m.	37	57	2,460	4.5	547	22.8
Total.....							19,090	42.5	2,787	116.2
Mean of 6 paths.....							3,182		465	19.4
Mean of 43.5 days.....									449	18.7
Low areas.										
I.....	1, p.m.	34	113	4, p.m.	27	79	2,460	3.0	820	34.2
II.....	3, p.m.	32	112	10, a.m.	50	62	3,900	6.5	600	25.0
III.....	8, p.m.	48	124	13, a.m.	47	68	3,080	4.5	680	28.3
IV.....	11, a.m.	33	115	15, a.m.	48	68	2,700	4.0	680	26.8
V.....	15, p.m.	32	118	19, a.m.	47	68	1,620	3.5	463	19.3
VI.....	17, a.m.	34	111	24, a.m.	41	90	3,380	7.0	480	20.0
VII.....	24, p.m.	48	126	29, a.m.	49	86	1,980	4.5	440	18.3
VIII.....	29, a.m.	35	107	7, p.m.	43	73	2,160	3.5	617	25.7
Total.....							21,300	36.5	4,790	199.6
Mean of 8 paths.....							2,662		599	25.0
Mean of 36.5 days.....									584	24.3

* March. † May.

RIVERS AND FLOODS.

Interest in that portion of the Mississippi watershed north of Cairo during the month of April was confined to the Missouri River. There was the usual spring rise in the Mississippi, the crest reaching Cairo on the 29th. No danger-line

stages occurred and nothing of interest was reported, except the arrival of the first boat of the season at La Crosse on the 13th and at St. Paul on the 23d.

In the Missouri River the ice broke at Sioux City on the 4th, at Pierre on the 11th, and at Bismark on the 12th. The last floating ice passed Omaha on the 8th. After the ice moved out high stages were general from the headwaters to Kansas City, and also in the tributaries north of Omaha. Flood lines were reached from Fort Buford southward. At Bismark a stage of 21.2 feet was recorded on the 14th, 7.2 feet above the danger line for points immediately below. At Sioux City the water lacked 0.5 foot of reaching the danger line, while at Omaha it exceeded it by the same amount. At Kansas City a stage of 23.3 feet was reached on the 28th, 2.3 feet above the danger line, but east of Boonville, Mo., no high stages were experienced, owing to the low stages then prevailing in the tributaries within the State of Missouri, particularly in the Osage and Gasconade. To these same low stages can also be attributed the fact that there was no flood in the Mississippi from Alton to Cairo.

The damage along the Missouri consisted of overflowed bottoms and wrecked railroad beds and tracks. In the Dakotas traffic was very much interrupted by washouts, and many thousand dollars' worth of damage was done. Considerable loss was also occasioned along the water front at Omaha. The losses of the farmers were not large, but spring seeding was greatly delayed.

The Ohio fell steadily throughout the entire month, except below the mouth of the Cumberland River, where the fall was checked on the 24th by a rise out of the Cumberland and Tennessee rivers, and at Cairo on the 25th, meeting, also, at this time, the advance of the upper Mississippi rise.

From Cairo southward danger-line stages were general at the beginning of the month, except at New Orleans, where the flood line was not reached until the 5th. The greatest excess above the danger line occurred at Helena, Ark., from the 10th to the 13th, when the stage was 46.9 feet, 4.9 feet above. At New Orleans a stage of 17.2 feet was recorded on the 22d, being 1.2 feet above the danger line. The loss and damage were comparatively trifling, although much was avoided in the lower Ohio and lower Tennessee basins by the accurate warnings issued by the Cairo office of the Weather Bureau. At the close of the month a general fall was in progress.

The Atchafalaya remained from 1 to 2 feet above the danger line during the entire month.

The rivers of the eastern districts did not develop any interesting features during the month. They were high in the Carolinas during the first ten days, closely approximating danger stages at many points, for which the necessary warnings were issued, but no reports of damage have been received.

In Alabama there were also quite high stages during the earlier portion of the month, but they were not in any way excessive.

The rivers of the Pacific coast district remained at moderate stages, except the lower Sacramento River, which was within 5 feet of the danger line during the entire month, with, however, a falling tendency.

The highest and lowest water, mean stage, and monthly range at 130 river stations are given in the accompanying table. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: St. Louis, Cairo, Memphis, and Vicksburg, on the Mississippi; Cincinnati, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—H. C. Frankenfield, Forecast Official.

Heights of rivers referred to zeros of gauges, April, 1899.

Stations.	Distance to mouth of river.	Danger line on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
<i>Mississippi River.</i>								
St. Paul, Minn. 1.....	1,357	14	10.5	14	5.0	8	8.1	5.5
Reads Landing, Minn.....	1,357	12	7.7	18, 19	—0.5	1-5	4.4	8.2
La Crosse, Wis. 1.....	1,322	12	9.5	20, 21	6.9	8	8.6	2.6
North McGregor, Iowa.....	1,762	18	11.6	25	3.3	2	8.5	8.3
Dubuque, Iowa.....	1,702	15	11.7	27	2.7	5	7.8	9.0
Leclaire, Iowa.....	1,612	10	7.5	29, 30	0.8	4, 5	4.5	6.7
Davenport, Iowa.....	1,596	15	9.6	29, 30	1.9	5	5.9	7.7
Muscatine, Iowa.....	1,566	16	11.0	30	2.5	6	6.9	8.5
Galland, Iowa.....	1,475	8	5.6	30	1.4	5, 6	3.8	4.2
Keokuk, Iowa.....	1,466	14	9.6	30	2.1	6	5.9	7.5
Hannibal, Mo.....	1,405	17	11.2	29, 30	8.6	5	7.5	7.6
Grafton, Ill.....	1,307	23	15.0	30	8.3	5, 6	10.8	6.7
St. Louis, Mo.....	1,264	30	25.6	27	12.0	4	17.1	18.6
Chester, Ill.....	1,189	36	21.4	27	9.3	4, 5	16.6	12.1
Memphis, Tenn.....	843	33	35.3	{1, 3-5/7-10}	23.4	26	31.8	11.9
Helena, Ark.....	767	42	46.9	10-13	36.6	28	44.2	10.3
Arkansas City, Ark.....	635	42	48.6	15-20	44.5	30	44.2	4.1
Greenville, Miss.....	595	42	43.0	17-20	38.9	30	41.8	4.1
Vicksburg, Miss.....	474	45	47.3	16-24	45.0	1	46.6	2.8
New Orleans, La.....	108	16	17.2	22	15.5	1	16.5	1.7
<i>Missouri River.</i>								
Bismarck, N. Dak.....	1,201	14	21.2	14	6.3	5	10.4	14.9
Pierre, S. Dak. 2.....	1,006	14	15.9	19	6.0	12	10.5	9.9
Sioux City, Iowa 3.....	676	19	18.5	21	8.1	10	12.9	10.4
Omaha, Nebr.....	561	18	18.5	25	7.6	4	12.3	10.9
Plattsmouth, Nebr.....	538	17	12.7	25	4.2	4	8.1	8.5
St. Joseph, Mo.....	373	10	12.6	27	2.6	6	7.8	10.0
Kansas City, Mo.....	280	21	23.3	28	9.1	2, 4	15.2	14.2
Boonville, Mo.....	191	20	20.0	30	7.0	1	13.2	13.0
Hermann, Mo.....	95	24	18.9	26, 27	7.9	1, 2	12.7	11.0
<i>Des Moines River.</i>								
Des Moines, Iowa.....	150	19	10.0	10	3.4	3	5.9	6.6
<i>Illinois River.</i>								
Peoria, Ill.....	135	14	13.6	1	9.0	30	11.5	4.6
Beardstown, Ill.....	70	13	13.3	1	10.1	29, 30	11.4	3.2
<i>Osage River.</i>								
Bagnell, Mo.....	70	28	18.6	25	3.1	20	7.5	15.5
<i>Gasconade River.</i>								
Arlington, Mo.....	58	16	9.1	25	0.4	18-20	2.2	8.7
<i>Youghiogheny River.</i>								
Confluence, Pa.....	59	10	6.5	8	2.1	30	3.4	4.4
West Newton, Pa.....	15	23	5.6	9	1.2	29, 30	2.5	4.4
<i>Allegheny River.</i>								
Warren, Pa.....	177	7	5.0	14, 15	1.6	30	3.0	3.4
Oil City, Pa.....	123	13	5.9	9	1.9	29, 30	3.4	4.0
Parkers Landing, Pa.....	73	20	7.1	9	2.3	25, 29, 30	4.1	4.8
<i>Monongahela River.</i>								
Weston, W. Va.....	161	18	2.1	1	—0.5	28-30	0.2	2.6
Fairmont, W. Va.....	119	25	4.9	1	1.0	30	2.3	3.9
Greensboro, Pa.....	81	18	11.0	1, 9	7.9	{24, 25/28-30}	6.5	3.1
Lock No. 4, Pa.....	40	28	13.0	1	7.2	25	9.3	5.8
<i>Conemaugh River.</i>								
Johnstown, Pa.....	64	7	5.8	8	1.6	{25, 26/28, 29}	2.4	4.2
<i>Red Bank Creek.</i>								
Brookville, Pa.....	35	8	2.2	8	0.7	25-30	1.2	1.5
<i>Beaver River.</i>								
Ellwood Junction, Pa....	10	14	2.0	9	0.9	27-30	1.3	1.1
<i>Great Kanawha River.</i>								
Charleston, W. Va.....	61	30	10.8	1	4.8	24	6.9	6.0
<i>New River.</i>								
Hinton, W. Va.....	95	14	4.8	1	2.6	23-25	3.6	2.2
<i>Cheat River.</i>								
Rowlesburg, W. Va.....	36	14	5.5	8	2.0	29	3.3	3.5
<i>Ohio River.</i>								
Pittsburg, Pa.....	966	22	12.0	1	3.3	30	6.9	8.7
Davis Island Dam, Pa.....	960	25	12.4	1	5.4	30	8.4	7.0
Wheeling, W. Va.....	875	36	21.3	1	6.6	30	10.8	14.7
Parkersburg, W. Va.....	785	36	26.9	1	8.2	26, 27, 30	12.6	18.7
Point Pleasant, W. Va....	708	39	37.0	1	7.9	26	16.2	29.1
Catlettsburg, Ky.....	651	50	44.6	1	10.6	27	21.1	34.0
Portsmouth, Ohio.....	612	50	47.0	1	12.0	28	22.7	35.0
Cincinnati, Ohio.....	499	50	51.6	1	14.2	30	26.7	37.4
Louisville, Ky.....	367	28	26.9	8	7.3	28	12.3	19.6
Evansville, Ind.....	184	35	40.4	5	14.0	30	27.0	26.4
Paducah, Ky.....	47	40	43.8	4, 5	18.8	24	32.4	25.0
Cairo, Ill.....	1,073	45	46.2	1-4	28.9	24	39.1	17.3
<i>Muskingum River.</i>								
Zanesville, Ohio.....	70	20	16.8	1	7.6	25	10.2	9.2
<i>Miami River.</i>								
Dayton, Ohio.....	60	18	3.6	1	1.7	30	2.3	1.9
<i>Wabash River.</i>								
Mount Carmel, Ill.....	50	15	15.1	1	5.4	{19-21/25, 26}	8.3	9.7
<i>Licking River.</i>								
Falmouth, Ky.....	30	25	13.3	1	3.4	30	6.0	9.9
<i>Hwassee River.</i>								
Charleston, Tenn.....	18	23	11.0	8	3.5	23	5.5	7.5
<i>Clinch River.</i>								
Spears Ferry, Va.....	156	20	3.4	1	0.7	23	1.9	2.7
Clinton, Tenn.....	46	25	16.0	1	5.2	24	9.3	10.8
<i>Tennessee River.</i>								
Knoxville, Tenn.....	614	28	7.6	5	1.6	24	3.9	6.0
Kinston, Tenn.....	534	25	14.7	1	3.1	24, 25	6.4	11.6
Chattanooga, Tenn.....	430	33	23.1	1	7.1	23	11.9	16.0
Bridgeport, Ala.....	390	24	17.5	1	5.3	22, 23	9.8	12.2
Florence, Ala.....	220	16	14.5	3, 4	5.8	22	10.1	8.7
Riverton, Ala.....	190	25	28.8	1	7.4	23	15.7	21.4
Johnsonville, Tenn.....	94	21	38.9	1	9.0	24	20.4	29.9
<i>Cumberland River.</i>								
Burnside, Ky.....	434	50	29.0	8	4.0	24	11.8	26.0

Heights of rivers referred to zeros of gauges—Continued.

Stations.	Distance to mouth of river.	Danger line on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
<i>Cumberland River—Con.</i>	<i>Miles.</i>	<i>Feet.</i>	<i>Feet.</i>		<i>Feet.</i>		<i>Feet.</i>	<i>Feet.</i>
Carthage, Tenn.	257	30	38.0	1	5.1	23	17.2	30.9
Nashville, Tenn.	175	40	38.3	4	8.5	22, 23	22.4	29.8
<i>Arkansas River.</i>								
Wichita, Kans.	730	10	2.6	6.7	1.7	30	2.1	0.9
Webbers Falls, Ind. Ter.	407	23	18.1	24	2.8	15, 16	6.6	15.3
Fort Smith, Ark.	345	23	19.2	24	3.9	10, 15, 17	7.4	15.3
Dardanelle, Ark.	250	21	19.2	25	3.0	12, 13	6.8	16.2
Little Rock, Ark.	170	23	20.4	26	4.3	14	8.3	16.1
<i>White River.</i>								
Newport, Ark.	150	26	22.2	27	7.0	16	11.2	15.2
<i>Yazoo River.</i>								
Yazoo City, Miss.	80	25	25.8	9-14	23.5	30	25.3	2.3
<i>Red River.</i>								
Arthur City, Tex.	698	27	10.6	24	4.5	1-14, 16-21	5.7	6.1
Fulton, Ark.	565	28	20.3	27	3.4	15, 16	7.6	16.9
Shreveport, La.	449	29	11.8	29, 30	1.5	10, 20	3.7	10.3
Alexandria, La.	139	33	9.4	10	5.6	25, 26	7.2	3.8
<i>Ouachita River.</i>								
Camden, Ark.	340	39	26.2	27	7.6	6	14.1	18.6
Monroe, La.	100	40	27.8	1	20.7	26-29	23.3	7.1
<i>Atchafalaya Bayou.</i>								
Melville, La.	100+	31	33.4	21-30	32.2	1	33.0	1.2
<i>Susquehanna River.</i>								
Wilkesbarre, Pa.	178	14	10.2	15	2.5	30	6.6	7.7
Harrisburg, Pa.	70	17	8.8	10	3.4	30	5.8	5.4
<i>W. Br. of Susquehanna.</i>								
Williamsport, Pa.	35	20	7.8	9, 10	3.1	30	5.3	4.7
<i>Junata River.</i>								
Huntingdon, Pa.	80	24						
<i>Potomac River.</i>								
Harpers Ferry, W. Va.	170	16	5.3	10	2.4	27-30	3.5	2.9
<i>James River.</i>								
Lynchburg, Va.	257	18	3.0	1	1.4	22-26, 30	2.0	1.6
Richmond, Va.	110	12	4.3	9	0.6	24-27	1.4	3.7
<i>Roanoke River.</i>								
Clarksville, Va.	155	12	9.0	9	2.8	25	3.9	6.2
Weldon, N. C.	90	27	26.3	10	8.8	25	12.1	17.5
<i>Cape Fear River.</i>								
Fayetteville, N. C.	100	38	35.5	9	6.6	25	14.0	28.9
<i>Lumber River.</i>								
Fairbluff, N. C.	10	6	6.3	13, 14	4.8	30	5.6	1.5
<i>Edisto River.</i>								
Edisto, S. C.	75	6	5.4	11	4.0	30	4.8	1.4
<i>Pedee River.</i>								
Cheraw, S. C.	145	27	23.8	9	5.0	25	10.6	18.8

Heights of rivers referred to zeros of gauges—Continued.

Stations.	Distance to mouth of river.	Danger line on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
<i>Black River.</i>	<i>Miles.</i>	<i>Feet.</i>	<i>Feet.</i>		<i>Feet.</i>		<i>Feet.</i>	<i>Feet.</i>
Kingstree, S. C.	60	12	9.1	20, 21	6.2	30	7.7	2.9
<i>Lynch Creek.</i>								
Effingham, S. C.	35	12	12.0	8	6.7	25, 28, 30	9.3	5.3
<i>Santee River.</i>								
St. Stephens, S. C.	50	12	9.9	1	7.9	29, 30	8.8	2.0
<i>Congaree River.</i>								
Columbia, S. C.	37	15	6.8	1	1.3	23, 25, 30	2.5	5.5
<i>Walter River.</i>								
Camden, S. C.	45	24	23.0	9	6.3	25	11.8	16.7
<i>Waccamaw River.</i>								
Conway, S. C.	40	7	6.2	29, 30	4.3	6, 7	5.0	1.9
<i>Savannah River.</i>								
Calhoun Falls, S. C.			6.6	1	2.9	24	4.4	3.7
Augusta, Ga.	130	33	19.6	1	9.7	24	12.1	9.9
<i>Broad River.</i>								
Carlton, Ga.			5.8	1	3.1	18, 21-24, 29, 30	3.5	2.7
<i>Flint River.</i>								
Albany, Ga.	80	20	8.3	1	5.0	15-17	6.5	3.3
<i>Chatahochee River.</i>								
West Point, Ga.	239	20	10.0	1	4.4	21	5.7	5.6
Eufaula, Ala.	90	30	15.0	2	6.6	23	9.0	8.4
<i>Cosa River.</i>								
Rome, Ga.	225	30	15.0	8	4.0	23	7.3	11.0
Gadsden, Ala.	144	18	17.4	10	5.0	22	10.2	12.4
<i>Alabama River.</i>								
Montgomery, Ala.	265	35	24.2	10	8.1	22	15.6	16.1
Selma, Ala.	212	35	26.9	11	10.1	24	18.4	16.8
<i>Tombigbee River.</i>								
Columbus, Miss.	295	33	5.8	1	0.4	19, 21, 30	1.5	5.4
Demopolis, Ala.	155	35	51.7	1	8.9	25	26.1	42.8
<i>Black Warrior River.</i>								
Tuscaloosa, Ala.	90	38	34.0	9	8.6	23	18.0	25.4
<i>Columbia River.</i>								
Umatilla, Oreg.	270	25	9.8	28	4.0	5	7.2	5.8
The Dalles, Oreg.	166	40	15.5	28, 29	6.1	3	11.6	9.4
<i>Willamette River.</i>								
Albany, Oreg.	99	30	9.5	14	5.2	2	7.4	4.3
Portland, Oreg.	10	15	11.4	14	5.0	4	8.3	6.4
<i>Sacramento River.</i>								
Red Bluff, Cal.	241	23	6.0	1	3.4	11, 12	4.3	2.6
Sacramento, Cal.	70	25	24.2	1, 3	30.2	30	22.7	4.0

¹ Record for 23 days. ² Record for 20 days. ³ Record for 20 days. ⁴ Record for 20 days.

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches.

Alabama.—The mean temperature was 61.6°, or about 3.0° below normal; the highest was 98°, at Pineapple on the 28th, and the lowest, 26°, at Valleyhead on the 2d. The average precipitation was 2.80, or more than 1.00 below normal, the deficiency being greatest in the southern portions; the greatest monthly amount, 7.18, occurred at Valleyhead, and the least, trace, at Evergreen.—*F. P. Chaffee.*

Arizona.—The mean temperature was 62.3°; the highest was 105°, at Blaisdell on the 9th, and the lowest, 11°, at Prescott on the 26th. The average precipitation was 0.20; the greatest monthly amount, 2.33, occurred at Oro Blanco, while none fell at a number of stations.—*W. G. Burns.*

Arkansas.—The mean temperature was 60.7°, or 2.3° below normal; the highest was 96°, at Conway on the 25th, and the lowest, 19°, at Pond and Silversprings on the 1st. The average precipitation was 3.28, or 1.30 below normal; the greatest monthly amount, 5.38, occurred at Mossville, and the least, 0.82, at Ozark.—*E. B. Richards.*

California.—The mean temperature for the State, obtained by weighting the reports from 288 stations, so that equal areas have about the same weight, was 58.1°, which was 0.2° above normal for the State, as determined from 205 records; the highest was 108°, at Elsinore, Riverside County, on the 8th, and the lowest, 7°, at Bodie, Mono County, on the 25th. The average precipitation for the State, as determined by the records of 312 stations, was 0.60; the deficiency, as indicated by reports from 163 stations which have normals, was 1.39; the greatest monthly amount, 3.20, occurred at Crescent City, Del Norte County, while none fell at several stations.—*Alexander G. McAdie.*

Colorado.—The mean temperature was 45.3°, or practically normal;

the highest was 90°, at Lamar on the 12th and Minneapolis on the 25th, and the lowest, 15° below zero, at Breckenridge on the 6th. The average precipitation was 0.71, or 0.66 below normal; the greatest monthly amount, 2.72, occurred at Ruby, while none fell at several stations.—*F. H. Brandenburg.*

Florida.—The mean temperature was 67.7°, or 2.3° below normal; the highest was 95°, at Wausau on the 28th, and the lowest, 32°, at the same station on the 10th. The average precipitation was 3.40, or 1.10 above normal; the greatest monthly amount, 10.75, occurred at Lemon City, and the least, 0.14, at Gainesville.—*A. J. Mitchell.*

Georgia.—The mean temperature was 62.4°, or 2.0° below normal; the highest was 95°, at Columbus on the 28th, and the lowest, 25°, at Diamond and Dahlonega on the 10th. The average precipitation was 2.73, or 0.46 below normal; the greatest monthly amount, 6.03, occurred at Greenbush, and the least, 0.83, at Leverett.—*J. B. Marbury.*

Idaho.—The mean temperature was 42.4°, or 2.3° below normal; the highest was 84°, at Hagerman on the 8th, and the lowest, 3°, at Swan Valley on the 17th. The average precipitation was 1.35, or 0.36 above normal; the greatest monthly amount, 5.28, occurred at Murray, and the least, 0.02, at Downey.—*S. M. Blanford.*

Illinois.—The mean temperature was 53.8°, or 1.1° above normal; the highest was 95°, at Bloomington on the 29th, and the lowest, 8°, at Streator on the 1st and at Minonk on the 2d. The average precipitation was 1.54, or 1.72 below normal; the greatest monthly amount, 4.61, occurred at Scales Mound, and the least, 0.14, at Chicago.—*C. E. Linney.*

Indiana.—The mean temperature was 54.4°, or about 2.5° above normal; the highest was 96°, on the 30th, and the lowest, 10°, at Lafayette and Topeka on the 2d. The average precipitation was 1.60, or about 1.75 below normal; the greatest monthly amount, 4.00, occurred at Jeffersonville, and the least, 0.13, at Hammond.—*C. F. R. Wappenhans.*

Iowa.—The mean temperature was 48.9°, or about normal; the highest was 89°, at Thurman on the 12th, and the lowest, 1°, at Bedford on the 4th. The average precipitation was 2.40, or about 0.60 below normal; the greatest monthly amount, 5.76, occurred at Belle Plaine, and the